M-COLOR®
Colour Masterbatches for Plastics
Polymer Institute Brno (PIB) is a chemical research company and polymer additive master-batch producer with long tradition that started already in 1956 as Research Institute of Macromolecular Chemistry. Since January 2016, PIB has been incorporated into Unipetrol Group as a branch office of the Unipetrol RPA company. In 1992 PIB started to develop and manufacture customized products for plastics industry such as additive and colour concentrates, flame retardant compounds, filled or reinforced plastics and special composites always utilizing support of own research capacity. PIB has now more than 300 clients and with its focus on innovation and functionality, company is well received on the Czech market as one of leading commercial plastics solution provider with industrial know-how based on excellent technical base and experienced staff. In 2000 PIB has implemented Quality Management System according to ISO 9001.

Product range consists of filled materials, special composite materials, flame retardant compounds, colour concentrates and additive masterbatches (stabiliser, antistatic, nucleation, slip agents, filler, etc.). The modification and colouring of plastics is carried out on twin - or single - screw extruders enabling the compounding of a variety of resins, such as PE, PP, PS, ABS, PA, PC and PET.
Everybody knows colour makes the products sell. We know that choosing a supplier who delivers quality colour concentrate in short lead time is as important as selecting the right colour. You can rely on PIB to deliver consistent colour every time supported by skilled and professional service. Colorists utilize a large database of successful matches, which combine with deep polymer knowledge to provide you with accurate masterbatches or precolored resins and compounds. Your colour can be custom formulated to meet your precise appearance target or selected from our palette of thousands proven colours.

M-COLOR® are colour masterbatches of organic and inorganic pigments and / or dyes.

Colour matching is carried out according to the particular customer requirement or according to RAL, PANTONE and NCS colour standards.
Fibres and Nonwovens

Colouring of polyolefin fibers is one of the most demanding applications for colour concentrates. PIB possesses many year experience in selecting of suitable concentrate carriers, pigments free of agglomerates and deep knowledge of compounding process.

Tapes and raffia

Agriculture and textile applications represent complicated system of colours and UV stabilizers that have resist to harsh conditions like agriculture chemicals, direct sunlight or gas-fading problems. PIB has many year experience in designing of complex colour systems that take into account all these effects.

Automotive

The automotive market segment requires stringent color control and advanced formulations to meet high colour UV and heat resistance. PIB has a many year expertise in colouring of both interior and exterior plastic automotive parts.
Packaging

PIB colour concentrates can be found in rigid as well as in flexible packaging applications like cosmetics, home products, food storage boxes and many others. With the access to special effect pigments, knowledge of new colour trends and deep polymer properties understanding PIB has proved as true partner not only as a simple colour supplier.

Medical

PIB possesses a complex understanding of the regulatory requirements of the medical market segment and provides technical support to its specific needs.

Extruded Sheets, Profiles and Pipes

Colour stability of swimming pools exposed to direct sunlight in the presence of chlorinated water represents one of the most challenging applications of PIB colours. Almost two decades of successful swimming pool installations is a clear evidence of PIB colour masterbatch quality. PC, PMMA and styrene copolymers roofing systems are one of very important application fields of M-COLOR concentrates.
Building materials

PIB offer colours also in combination with UV stabilizers or flame retardants demanded by the building construction market for roofing systems.

Appliances

Appliances represent variety of colors and styles. They symbolize not just functional but also nice and attractive thing. Special effect pigments therefore find more and more frequently their use here.

Industrial and Furniture

Crates, buckets, trays and containers are just several of the items for which PIB provides M-COLOR custom colour masterbatches. Industrial applications are extremely varied and complex. Colour designer has to take into consideration many parameters like specific processing needs, other additives used along with colour or physical conditions connected with product end use.
Carrier resins for colour concentrates

The selection of a suitable carrier is dependent on the properties of the material being finally used at the processing stage. Presently, the concentrates are available at PIB for colouring of commodity polyolefins (PE-HD, PE-LD, PE-LLD, PP, EPDM). Besides this, concentrates for colouring polystyrenes (PS, PS-SB and ABS) are made as well as those suitable for most common engineering plastics (PA, PC, POM, PET, PBT, PUR and TPE). In all these cases the selection of a suitable carrier resin is made with regard to the technology used for processing, the final goal being optimum pigment dispersion in the final article.

Properties of colour concentrates

When optimizing the pigment selection the desirable properties of the final article are the main criterion to be taken into account. So, requirements of pigment weathering resistance and colour fastness or food contact approval have to be considered.
Each colour application may have special requirements that have to be taken into account when preparing a custom colour match. Customer will be asked to provide information regarding the following issues:

**End Use Application**

Type of application is important for selection of appropriate pigments / colours with respect to thermal and UV light exposure.

**Polymer type along with information on specific polymer grade**

This information is important for selection of suitable carrier resin and colorants. Some pigments are not compatible with all polymers and certain grades utilize processing parameters that can degrade many pigments.

**Processing Method and Expected Maximum Processing Temperatures**

E.g. injection moulding, extrusion, blow moulding, fibre etc.

**Part Thickness**

This parameter influence colour opacity.

**Colour Supply Form**

Either colour masterbatch, minimum and maximum concentration limits, or precolored form.

**Regulatory Compliance**

**Additional Properties**

The colour can be used in conjunction with UV stabilizers, flame retardants, antistatic or slip additives, antimicrobial or laser marking additives.

**Evaluation Light Source**

Colour matches may differ when viewed under different light sources (artificial daylight, fluorescent, incandescent).

**Delta E**

Used to determine match accuracy whether the CIE-LAB will be. Tolerance must be agreed upon.
Quality ISO certification

Quality Management System according to ISO 9001:2009

Regulatory compliance

Declaration of conformity with the following standards and normative documents:

- Food approval
  EU:
  Regulation (EC) No 1935/2004 of the European Parliament and of the Council ON MATERIALS AND ARTICLES INTENDED TO COME INTO CONTACT WITH FOOD,
  Commission Regulations (EC) No 2023/2006 ON GOOD MANUFACTURING PRACTICE for materials and articles intended to come into contact with food.


  Regulation (EC) No 1895/2005 (of 18 November 2005) ON THE RESTRICTION OF USE OF CERTAIN EPOXY DERIVATIVES IN MATERIALS AND ARTICLES INTENDED TO COME INTO CONTACT WITH FOOD

  European Resolution AP (89) 1 ON THE USE OF COLOURANTS IN PLASTIC MATERIALS COMING INTO CONTACT WITH FOOD

- USA: FDA (Food and Drug Administration), Title 21 CFR (Code of Federal Regulations)
- Germany: BfR (Bundesinstitut für Risikobewertung) Recommendations on Food Contact Materials

- Regulation (EC) No. 1907/2006 concerning the REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS (REACH), including SVHC substances (Candidate List of Substances of Very High Concern).


- Directive 2011/65/EU (of 8 June 2011) ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (RoHS)

- TALLOW AND ITS DERIVATES (BSE/TSE)

- GADSL (GLOBAL AUTOMOTIVE DECLARABLE SUBSTANCE LIST)


- GMO (GENETICALLY MODIFIED SUBSTANCES)

- Montreal Protocol on Substances that Deplete the Ozone Layer.